

What is claimed is:

1. A transmission line comprising:

a signal strip;

a resistive layer opposed to the signal strip with a dielectric layer
5 disposed between the resistive layer and the signal strip; and

a ground conductor electrically connected to the resistive layer,
wherein,

a high frequency current is induced in the resistive layer through
capacitance formed by the dielectric layer between the signal strip and the
10 resistive layer when a high frequency signal of a predetermined frequency
is transmitted through the signal strip, and when resistance per unit
length generated when the high frequency current flows in the resistive
layer, and between the resistive layer and the ground conductor, is defined
as an additional resistance, and resistance per unit length generated when
15 the high frequency current flows through the ground conductor is defined
as a ground resistance, the additional resistance is larger than the ground
conductor.

2. The transmission line according to claim 1, wherein a length of
the resistive layer is $1/16$ or more of an effective wavelength λ of a signal of
20 an upper limit frequency of the high frequency signal.

3. The transmission line according to claim 1, wherein conductivity
of a material constituting the resistive layer is smaller than conductivity of
the ground conductor.

4. The transmission line according to claim 1, wherein the
25 conductivity of the material constituting the resistive layer is in the range
of 1×10^3 S/m or more and 1×10^7 S/m or less.

5. The transmission line according to claim 4, wherein the
conductivity of the material constituting the resistive layer is in the range
of 1×10^3 S/m or more and 1×10^5 S/m or less.

30 6. The transmission line according to claim 1, wherein the resistive

layer is formed from at least one material selected from the group consisting of chrome, nickel chrome alloy, iron-chrome alloy, thallium, a chrome-silicon oxide composite, titanium, an impurity doped semiconductor, and polycrystalline or amorphous semiconductors formed by polysilicon or
5 the like.

7. The transmission line according to claim 1, wherein a width of the resistive layer is larger than a width of the signal strip.

8. The transmission line according to claim 7, wherein the resistive layer is formed in such a fashion that the whole width thereof is opposed to
10 the signal strip.

9. The transmission line according to claim 8, wherein
the signal strip is formed on a top face of the dielectric layer;
the resistive layer is formed between the substrate and the dielectric layer;
15 the ground conductor is formed on a bottom face of the substrate;
and

the resistive layer is connected to the ground conductor by way of a penetrating conductor penetrating the substrate.

10. The transmission line according to claim 9, wherein the
20 penetrating conductor is formed on an edge of the resistive layer.

11. The transmission line according to claim 9, wherein a plurality of the penetrating conductors are formed along a longitudinal direction of the resistive layer with a spacing.

12. The transmission line according to claim 8, wherein
25 the signal strip is formed on a top face of the dielectric layer;
the resistive layer is formed between the substrate and the dielectric layer;

the ground conductor is formed on the top face of the dielectric layer; and
30 the resistive layer is connected to the ground conductor by way of a

penetrating conductor penetrating the dielectric layer.

13. The transmission line according to claim 8, wherein
the signal strip is formed between the substrate and the dielectric
layer;

5 the resistive layer is formed on a top face of the dielectric layer; and
the ground conductor is formed on the top face of the dielectric
layer in such a fashion that the ground conductor is connected to the
resistive layer.

14. A semiconductor integrated circuit device comprising:
10 a main signal circuit on which at least one active element is
disposed; and
a bias supplying circuit having a transmission line and supplying
bias to the main signal circuit through the transmission line, wherein
at least a part of the transmission line is the transmission line
15 according to claim 8.

15. The semiconductor integrated circuit according to claim 14,
wherein
the transmission line has a first transmission line connected to the
main signal circuit and a second transmission line connected to the first
20 transmission line;

the first transmission line is formed by a coplanar waveguide or a
microstrip;

the second transmission line is formed by at least a part of the
transmission line; and
25 an end of the first transmission line closer to the main signal circuit
is connected to a ground terminal through a bypass condenser.

16. The semiconductor integrated circuit according to claim 14,
wherein

the semiconductor integrated circuit device is a single-stage high
30 frequency amplifier having an amplifying transistor as the at least one

active element; and

the bypass supplying circuit is at least one of an input side circuit that is of a front stage side with respect to the active element of the main signal circuit and an output circuit that is of a rear stage side with respect
5 to the active element of the main signal circuit.

17. The semiconductor integrated circuit according to claim 16,
wherein

the semiconductor integrated circuit device is a multi-stage high frequency amplifier having a plurality of amplifying transistors as the at
10 least one active element; and

the bypass supplying circuit is at least one of an input side circuit that is of a front stage side with respect to the active element of the main signal circuit, an output circuit that is of a rear stage side with respect to the active element of the main signal circuit, and an interstage circuit that
15 is disposed between the plurality of amplifying transistors.